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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,023	06/14/2004	Philip A. Lamarre	20030146	4022
42716	7590	03/31/2006	EXAMINER	
MAINE & ASMUS P. O. BOX 3445 NASHUA, NH 03061			BARRECA, NICOLE M	
			ART UNIT	PAPER NUMBER
			1756	
DATE MAILED: 03/31/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/710,023

Applicant(s)

LAMARRE, PHILIP A.

Examiner

Nicole M. Barreca

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-20 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-20 are pending in this application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. The applicant's original specification does not support all elements of the Markush group as amended. SU-8 is known in the photoresist art to generally be an epoxy novolac. However the other components added to the amendment are not known in the art to always be included in a SU-8 composition. As it is currently written the applicant is claiming that the first and second resist layers could be any resist consisting of gamma butyrolactone, cyclopentanone, triarylsulfonium hexafluoroantimonate salt, propylene carbonate, or polyaniline. The applicant does not have support for such a broad amendment just because such components have been known to be included in some SU-8 compositions. The listed components include conventional solvents and photoacid generators used in numerous known photoresist compositions and the applicant has no support to claim all such components. The

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documents listed in the applicant's response do provide general support that SU-8 resists are known in the art to include epoxy novolac. However these documents fail to provide support for the rest of the components such as the solvents and acid generators as listed in the amended claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Canavello (US 4,212,935).

7. A structure is produced including a thin intermediate metallic layer deposited to protect the first resist layer during deposition of the top photoresist layer. The top and bottom resist layers are developed (col.2, 13-27).

8. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Jennison (US 6,156,487).

9. A structure is produced including a second photoresist layer 18, intermediate metal layer 16 and first photoresist layer 14 formed over the substrate. Opening 20 is developed in the second photoresist, the intermediate layer and first photoresist layer. See col.4, 12-col.5, 12 and Fig. 1G.

Claim Rejections - 35 USC § 103

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10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canavello.

12. The reference does not disclose using a second barrier layer and an overlying third resist layer. However the reference does teach that the thin intermediate metallic layer is deposited to protect the first resist layer during deposition of the second photoresist layer. One of ordinary skill would recognize that any number of additional resist layers could be deposited, as was required to produce the desired final device pattern, as this is known and frequently practiced in the lithography art. It would have been obvious to one of ordinary skill in the art that additional barrier layers would be required to be deposited between these resist layers because Canavello teaches that the thin intermediate metallic layer is deposited to protect the first resist layer during deposition of the second photoresist layer. The reference is silent on the specific patterns produced and does not disclose that the structure includes variable patterns, a plurality of structures or variable sizes. However it is known in the art that the photoresist patterns produced would be dependent on the requirements of the final device being manufactured and that the complexity of semiconductor devices typically require numerous lithographic patterns and sizes. It would be within the ordinary skill of one in the lithography art to determine such photoresist pattern requirements and to use

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variable patterns, a plurality of structures or variable sizes as was required for the specifications of the specific device being manufactured.

Allowable Subject Matter

13. Claims 9-20 are allowed.

14. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or suggest a method for fabricating a multi-layered lithographic semiconductor comprising the combination of claimed process steps including depositing an opaque barrier layer to the first resist layer covering the first latent image. While the prior art does teach structures including a patterned opaque barrier layer between two patterned photoresist layers, the references do not pattern-wise expose the first resist layer to form a latent image prior to deposition of the barrier layer but teach patterning this layer using the overlying layers as masks.

Response to Arguments

15. Applicant's arguments filed 1/13/06 have been fully considered but they are not persuasive. The applicant argues that the prior art does not disclose exposing the first resist layer prior to depositing the barrier layer. However this is a process limitation on a product claim. The patentability of a product does not depend on its method of production. The cited prior art does teach the structure of the claimed multi-layered lithography product.

16. The applicant argues that the examiner used the background of the Canavello reference. However the background of a patent is valid prior art.

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17. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole M. Barreca whose telephone number is 571-272-1379. The examiner can normally be reached on Monday-Thursday (9AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nicole M Barreca
Primary Examiner
Art Unit 1756



3/29/06